



Cumbria Waste Needs Assessment 2022

Scoping of 'Other' Waste Streams

Report: Final Issue

Version:v1.1

Issued: 6th November 2022

BPP Consulting Document Control

Project: Cumbria Waste Needs Assessment 2022

Report: Scoping of ‘Other’ Waste Streams

Version Description: Final Issue

Version No: v1.1

Date: 06.11.2022

Version No.	Version Description	Author	Date	Reviewed	Date
0.1	Draft for Internal review	Ella Mills	22.06.2022	Alan Potter (Partner)	27.06.2022
1.0	Draft for Client review	Alan Potter (Partner)	29.06.2022	Rachel Whaley (Client Reviewer)	
1.1	Final Issue	Alan Potter (Partner)	06.11.2022		

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Abbreviations and Glossary

Abbreviations

AD	Anaerobic Digestion
AMP	Asset Management Plan
C & I	Commercial & Industrial Waste
C, D & E / CDEW	Construction, Demolition & Excavation Waste
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EfW	Energy from Waste
EWC	European Waste Catalogue
HLW	High Level Radioactive Waste
HWRCs	Household Waste Recycling Centres
LACW	Local Authority Collected Waste
MRS	Metal Recycling Site
MRF	Material Recycling Facility
RDF	Refuse Derived Fuel
VLLW	Very Low Level Radioactive Waste
WDF	WasteDataFlow
WDI	Waste Data Interrogator
WIR	Waste Incinerator Returns
WNA	Waste Needs Assessment
WPA	Waste Planning Authority
WRMP	Water Resource Management Plan
WTS	Waste Transfer Station

Glossary of Terms

Agricultural Waste	Waste produced on a 'farm' in the course of 'farming'. Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms e.g. plastics and metal.
Anaerobic Digestion	A process to manage organic matter including green waste and food waste broken down by bacteria in the absence of air, producing a gas (biogas) and nutrient rich solid or liquid (digestate). The biogas can be used to generate energy either in a furnace, gas engine, turbine or to power vehicles, and digestate can be applied to land as a fertiliser.
Asset Management Plan	An asset management plan produced by sewerage and water undertaking for approval by Ofwat includes an assessment of what assets make up the water, sewer or storm system in a particular area and plans to meet future needs within agreed budgets.
Biodegradable waste	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
Commercial Waste	Waste from factories or premises used for the purpose of trade or business, sport, recreation or entertainment
Controlled Waste	Waste subject to controls emanating from the EU Waste Framework Directive.
Construction, Demolition & Excavation Waste	Waste arising from the building process comprising demolition and site clearance waste and builders' waste from the construction/demolition of buildings and infrastructure. Includes masonry, rubble and timber.
Energy from Waste	The conversion of the calorific value of waste into energy, normally heat or electricity through applying thermal treatment of some sort. May also include the production of gas that can be used to generate energy.
Environment Agency	The body responsible for the regulation of waste management activities through issuing permits to control activities that handle or produce waste. It also provides up-to-date information on waste management matters and deals with other matters such as water issues including flood protection.
European Waste Catalogue (EWC)	Comprehensive listing of wastes divided into 20 chapters, most of which are industry-based, although some are based on materials and processes. Each waste type is assigned a unique six-digit code. Otherwise referred to as List of Waste (LoW).
Exemptions	Certain activities exempt from the need to obtain an environmental permit. Each exemption has specific limits and conditions that must be complied with to remain valid. Exemptions must be registered with the Environment Agency. Each registration lasts 3 years.
Hazardous Waste Landfill	Sites where hazardous waste may be disposed by landfill. This can be a dedicated site or a single cell within a non-hazardous landfill, which has been specifically designed and designated for depositing hazardous waste.
Hazardous Waste	Waste requiring special management under the Hazardous Waste Regulations 2005 due to posing potential risk to public health or the environment (when improperly treated, stored, transported or disposed). This can be due to the quantity, concentration, or characteristics of the waste.
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
Landfill (including land raising)	The permanent disposal of waste to land, by the filling of voids or similar features, or the construction of landforms above ground level (land-raising).
Local Authority Collected Waste	Waste collected by or on behalf of a local authority. Includes household waste and business waste where collected by a local authority and non-municipal fractions such as construction and demolition waste delivered to HWRCs. LACW

	is the definition used in statistical publications, which previously referred to municipal waste.
Materials Recycling Facility (MRF)	A facility for sorting recyclable materials from the incoming waste stream.
Non-Hazardous Waste Landfill	A landfill permitted to accept non-inert (biodegradable) wastes e.g. municipal and commercial and industrial waste and other non-hazardous (including inert) wastes. May only accept hazardous waste if a special cell is constructed.
Ofwat	The regulatory body responsible for overseeing the privatised water and sewage industry in England and Wales.
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recycling	The reprocessing of materials extracted from the waste stream either into the same product or a different one.
The Plan area	The area subject to the Waste Local Plan to which this study relates. In this case the county of Cumbria including the Lake District National Park.
Waste Planning Authority	The authority responsible for planning for waste within a specific administrative area. In this case Cumbria County Council.
Waste Transfer Station	A site to which waste is delivered for sorting or baling prior to transfer to another place for recycling, treatment or disposal.
Water Resources Management Plans	Statutory documents that all water companies must produce at least every 5 years intended to set out how they will achieve a secure water supply while also enhancing the environment.

1. Purpose

Cumbria County Council has contracted BPP Consulting to produce an updated Waste Needs Assessment for Cumbria including the Lake District National Park.

The Waste Needs Assessment consists of the following documents:

1. Local Authority Collected Waste Assessment of Management Requirements to 2037;
2. Commercial & Industrial Waste Assessment of Management Requirements to 2037;
3. Construction, Demolition & Excavation Waste Assessment of Management Requirements to 2037;
4. Hazardous Waste Assessment of Management Requirements to 2037; and
5. Scoping Review of 'Other' Waste.

This report is concerned with updating the scoping review of 'other' waste streams for 2019 which includes:

- Wastewater
- Agricultural Waste
- Low Level Radioactive waste

As PPG advises that Waste Planning Authorities (WPAs) should seek to plan for these streams, this report is intended to determine if it is necessary to expressly provide for the 'Other' waste streams and therefore account for them in the Waste Needs Assessment in detail.

Principal Data Sources

The principal data sources used to generate this Waste Needs Assessment are the Environment Agency's Waste Data Interrogator (WDI), and Hazardous Waste Interrogator (HWI) supplemented by reference to Cumbrian council's entries into Waste Data Flow (WDF) as WDA and WCAs.

Waste Data Interrogator

Operators of all sites permitted to manage waste submit quarterly returns on the quantities, types and origin of waste received and, where applicable, destination of waste removed at their sites. These returns are collated by the Environment Agency and are included in a national database known as the Waste Data Interrogator (WDI). This is released approximately nine months after the end of the calendar year to which the data relates. The 2019 WDI (composed of data for the calendar year 2019) is the most current version available (version 4 released Nov 2020). The WDI now includes inputs to facilities such as incinerators which up to 2019 were reported separately through the Environment Agency's Waste Incinerator Returns.

Hazardous Waste Interrogator

Producers and managers of hazardous waste must notify the environment agencies (which depends on which part of the UK) of movements of waste classed as hazardous. This data is collated and reported in the Hazardous Waste Interrogator. Data is currently reported down to receiving local area rather than by receiving site. The HWI 2019 was released in March 2022.

Wastedataflow

Wastedataflow (WDF) is a web-based data entry portal for local authorities to report on local authority waste management arrangements to central Government on a quarterly basis. The data input is used to report on national recycling and landfill diversion performance as well as local authority league tables on recycling rates etc following independent quality checking. While Councils normally report in financial years, as the EA WDI reports for calendar year the data for Cumbria covering the four quarters of 2019 has been accessed to ensure comparability between datasets.

While the above data sources may be used to inform the generation of estimations for the principal waste streams, the data to estimate arisings of 'Other' waste streams is less readily available and as a result quantifying and forecasting arisings is more problematic.

Nevertheless the Planning Practice Guidance (PPG) does advise that Waste Planning Authorities (WPAs) should seek to plan for these streams so the following is an analysis of the quantities that may arise within each of these waste streams and how well existing arrangements may cope in future.

Given the scantness of information, this scoping assessment comprises a review of the Joint WNA 2019 for Cumbria and provides updates where more current information is available.

1.1 Advice on Data

The principal source of advice with respect to the use of data to inform production of a plan evidence base is the national Planning Practice Guidance available at <https://www.gov.uk/guidance/waste>. This states that:

"Assessing waste management needs for Local Plan making is likely to involve:

- understanding waste arisings from within the planning authority area, including imports and exports*
- identifying the waste management capacity gaps in total and by particular waste streams*
- forecasting the waste arisings both at the end of the period that is being planned for and interim dates*
- assessing the waste management capacity required to deal with forecast arisings at the interim dates and end of the plan period."*

Paragraph: 022 Reference ID: 28-022-20141016

It includes a section entitled " Using data to monitor and forecast waste needs", which articulates the following principles should waste planning authorities adopt when using data to plan for waste management:

- Make clear assumptions on how data were handled, as well as their impact (including on forecasting)*
- Provide data to an appropriate level of significance, based on their explicit assumptions. In practice, data quoted to more than 2 or 3 significant figures will not be helpful and spurious accuracy stemming from precise figures should be avoided*
- Plan for a range of each type of waste rather than a specific single figure."*

Paragraph: 036 Reference ID: 28-036-20141016 Revision date: 16 10 2014

In order to respect the need to avoid "spurious accuracy", the following approach has been taken:

1. Where actual tonnage data has been accessed, this has been used in the computations.
2. Where data has been subject to computation, this has been included to 3 sf.
3. Where percentages have been used to generate data, the percentages are presented as whole numbers, however the computations actually use the full value. This means that values presented may not always precisely correspond to the values computed when applying the percentage value presented in this report.
4. Final values have been corrected to nearest thousand.

2. Wastewater and Sewage Sludge

In Cumbria, United Utilities (UU) is the designated sewerage and water undertaker with responsibility for providing wastewater treatment capacity.

Every five years water and sewerage undertakers are required to submit to the water regulator, Ofwat, business plans known as Asset Management Plans (AMPs) that explain what services and infrastructure improvements each undertaker is planning to make and how these are to be funded. Ofwat sets price limits for the next five years based around the AMPs. Certainty of infrastructure provision over the medium and long terms can only be gained when future funding is secured through the asset management plan approval process. The current AMP period (known as AMP7) runs from 1 April 2020 to 31 March 2025 and does not therefore cover the whole Plan period.

Water companies also produce Water Resources Management Plans (WRMP) which cover a 25-year period to maintain sufficient water supply for customers whilst ensuring enough water remains in the environment to achieve environmental targets. United Utilities' current WRMP covers the period 2015-2040¹.

While wastewater treatment plants are considered to be waste developments and therefore planning applications relating to their provision are handled by the Waste Planning Authority, the assessment of the need for future wastewater management is managed through the asset management plan process informed by requirements for improvements in the water environment regulated by the Environment Agency. Therefore, PPG advises that early discussions take place between local planning authorities and water and sewerage undertakers, so that proposed growth and environmental objectives, set out in the AMP's, are reflected in local plans. This in turn should help ensure that the necessary infrastructure is funded through the water industry price review mechanism regulated by Ofwat.

There are two aspects of wastewater treatment that need to be addressed:

1. The provision of capacity to treat wastewater itself; and
2. the provision of capacity to manage the resultant solid wastes (sewage sludge) that arise from the treatment process.

Each is covered in the following sections.

2.1 Wastewater Treatment Capacity

The Joint WNA 2019 reported that:

- The 2019 WRMP forecasts a surplus of water supply from 2020 to 2040 to West Cumbria since the construction of a new water treatment works and pipeline from Thirlmere Reservoir into West Cumbria;
- Around £200 million investment was being targeted to improve resilience against water contamination which included the installation of generators at Carlisle Wastewater Treatment Works (WwTW);

¹ They have also recently consulted on their 2019 WRMP for the period 2015-2045 (Joint WNA 2019)

- Through direct contact, UU advised they are not able to give an outlook for the next AMP7 and beyond regarding their future infrastructure capacity, however, information on future development allocations provided by Local Plan authorities is passed onto their Asset Management team who then model any impact on infrastructure.

The WNA 2019 concluded that:

“There are currently no known requirements for additional waste water treatment facilities during the CMWLP period of 2015 – 2030. United Utilities will be consulted at the appropriate stage of any future local plan preparation and/or review.”

Update

UU’s 2015 plan for servicing the North West² region estimates that the number of households water supply and wastewater services will be supplied to, is expected to grow from 3 million in 2015 to 3.6 million by 2040. However, it is worth noting that the housing growth in Cumbria is expected to be low over the Plan period (increase of 3% amounting to c9,000 additional houses).

2.2 Management of Sewage Sludge

Sludge resulting from the treatment of wastewater is termed sewage sludge. This section looks at the current capacity of wastewater treatment works for the management of sludge and requirements for future capacity.

The WNA 2019 estimated 100,977 tonnes of sewage sludge was produced in Cumbria, all of which was managed within Cumbria.

Update

The WDI 2019 shows that a total of 77,046 tonnes of sewage sludge (EWC code 19 08 05 ‘*sludges from treatment of urban waste water*’) from Cumbria was managed by permitted water treatment reporting through the WDI. Of this 21,610 was managed within Cumbria at two sites operated by UU in Barrow (c11,000t) and Carlisle (c10,500t). These sites also received septic tank sludge and other sludges from Cumbria as discussed in section 2.3. The WDI 2019 reports outputs of sludge from these sites of c32,000 tonnes of which c13,000 tonnes was recovered or treated outside Cumbria and c19,000 was treated within Cumbria. This latter value is likely to have been double counted thus is deducted from the inputs leaving a total c58,000 tonnes of sewage sludge arising in Cumbria managed at permitted facilities within Cumbria reporting through the WDI in 2019.

Further inspection of United Utilities Biosources Market Information Report³ reveals sludge outputs from both sites in Cumbria (located in Barrow and Carlisle) are used for restoration of land and agricultural land which fall outside the permitting system. Table 1 shows the fate and annual capacities of these sites.

² United Utilities. Playing Our Part to Support the North West – Our Plans for the North West’s Water and Waste Water over the next 25 Years 2015-2040.

³ United Utilities Biosources Market Information Report (2020/21).

<https://www.unitedutilities.com/corporate/about-us/what-we-do/bioresources/>

Table 1: Information on Sludge Treatment Centres in Cumbria operated by United Utilities and their annual capacities

Source: United Utilities Biosources Market Information Report (2020/21)

	Type of Site	Annual Capacity (tonnes)	End Product Quantity (tonnes dry solids)	Fate of end product	Principal Destination
Barrow	Dewatering Centre	3,571	3,224	Exports raw cake to restoration	Land
Carlisle	Treatment Centre	3,800	5,127	Exports limed cake to agriculture	Land

The remainder of Cumbria sludge is managed at three facilities outside Cumbria, as shown in Table 2 below.

Table 2: Principal permitted sites receiving Cumbria sewage sludge outside Cumbria

Source: WDI 2019

Facility WPA	Operator	Facility Name	Tonnes Received
Lancashire	United Utilities	Stodday Remote Tanker Terminal	39,818
Trafford		Davyhulme WwTW	12,389
Stockton-on-Tees	Highfield Environmental	Cowpen Bewley Open Windrow Composting Facility	3,230

2.3 Sludge Storage Exemptions

Review of the exempt site listing provided by the Environment Agency indicates that UU has 2,000 exemptions registered under the following exemption from permitting:

S3: Storing sludge at a place where it is to be used in accordance with the Sludge (Use in Agriculture) Regulations 1989.

This exemption allows up to 1,250 tonnes of sludge to be stored at each site at any one time. Material may be stored for up to 12 months before being applied to agricultural land as a fertiliser in accordance with Sludge (Use in Agriculture) Regulations 1989 & associated best practice guidance.

Unfortunately, the S3 exemptions registered to UU do not have addresses associated with the exemption so it is not possible to identify the number that relate to sites in Cumbria.

It should however be noted that these exemptions only provide interim storage for the sludge coming from the WwTW's in the area prior to application so are complementary, rather than alternative or additional to, wastewater sludge treatment capacity itself.

2.4 Inputs of Other Waste to Wastewater Treatment Works in Cumbria

WwTW can provide a valuable function in managing wastes, other than wastewater, that arise in liquid and sludge form such as septic tank emptyings. WwTW that receive such waste require an environmental permit. Review of the data presented in the WDI 2019 indicates that two WwTW at Barrow and Carlisle are permitted to receive and treat waste other than wastewater and sludges. Inputs delivered to these permitted facilities within Cumbria are shown in Table 3.

Table 3: Inputs to Permitted Wastewater Treatment Works in Cumbria (excluding EWC code 19 08 05)

Source: WDI 2019

EWC Waste Description	Barrow WwTW Total	Carlisle WwTW Total	Grand Total
02 07 02 - wastes from washing, cleaning and mechanical reduction of raw materials	0	216	216
16 10 02 - aqueous liquid wastes	196	1,280	1,476
19 07 03 - landfill leachate	31,171	270	31,441
19 08 12 - sludges from biological treatment of industrial waste water	0	6,135	6,135
19 09 02 - sludges from water clarification	10,605	24,501	35,106
20 03 04 – septic tank sludge	2,133	9,569	11,702
Total	44,105	41,971	86,076

Conclusion

Having reviewed the evidence, while there is a reasonable understanding of present and future needs, ongoing consultation with United Utilities will be necessary to determine what if any provision for additional capacity for management of this waste stream may need to be included in any update of the Cumbria Waste Local Plan.

3. Agricultural Waste

3.1 Context

The Waste Management (England and Wales) Regulations 2006 brought agricultural waste under legislative control for the first time. Prior to this a significant proportion was managed on farms by burning or deposit into farm tips which became illegal under the 2006 Regulations.

In advance of the introduction of the regulations the following research projects were undertaken to establish quantities and composition of arisings from this stream⁴ and understand management arrangements in place at the time with a view to identifying management needs at national level:

- 1998 survey reported in a 2001 Environment Agency report
- Agricultural Waste Survey reported in a 2003 Environment Agency report

These remain the most current sources of data available for the stream as a whole and therefore continue to be relied upon when seeking to generate local estimates for planning purposes.

Following the introduction of the regulations, certain agricultural waste is considered more likely to be managed in the same way as the commercial and industrial waste stream, thus placing some additional capacity requirements on the management network that manages this stream.

In order to identify whether waste from agricultural sources needs separate consideration in the Plan, the following three aspects have been considered:

1. The nature of different agricultural wastes;
2. the likely current level of arisings;
3. the way in which the arisings are managed.

3.2 The Nature of Different Agricultural Wastes

To be regarded as agricultural, waste must have been produced on a 'farm' in the course of 'farming'. Therefore, waste arising from activities that happen to be located on a farm, such as crop processing for food consumption, would fall outside this definition and be considered as commercial and industrial waste.

Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms.

Natural Agricultural Waste Arisings

This is the predominant waste stream produced by the sector and the most commonly produced natural waste are wastes from livestock farming such as slurries and manure. In the UK, if manures and slurries are used as a fertiliser on agricultural land they are technically not seen as a controlled waste and are excluded from waste management regulation (although there are controls on the application). Since natural wastes are outside formal control it is considered that they are unlikely to enter the formal waste management system which needs to be planned for⁵. Therefore, this report

⁴ Environment Agency (2001). Towards Sustainable Agricultural Waste Management. Environment Agency R&D Technical Report P1-339. <https://www.gov.uk/government/uploads/.../geho0003bieo-e-e.pdf>

⁵ It should be noted that some on farm waste management facilities such as lagoons and AD plants may make provision for this waste stream, sometime in conjunction with other wastes counted under other streams.

focuses on non-natural waste arisings. Non-natural waste arisings may include organic waste such as crop residues.

Non-Natural Agricultural Waste Arisings

'Non-natural' agricultural waste is waste other than 'natural' organic waste arising from farming activities. This includes discarded pesticide containers, plastics, tyres, batteries, clinical waste, old machinery, waste oil and packaging waste. The only recognised source of national estimates for arisings of non-natural agricultural waste available is the 2001 Environment Agency Report entitled 'Towards Sustainable Agricultural Waste Management'. This presents estimates of arisings down to regional level for 1998. For the North West region as a whole, the report estimates that approximately 35,587 tonnes of non-natural agricultural waste was produced on an annual basis.

3.3 Management Options

The 2006 DEFRA 'Waste Minimisation Manual: A Practical Guide For Farmers & Growers'⁶ identifies three principal routes for managing agricultural waste as follows:

1. Remove waste from the farm and deliver to an appropriately permitted facility.
2. Apply to the Environment Agency for a permit to manage certain waste on-farm⁷.
3. Register an appropriate exemption to recover or dispose of some waste on-farm.

Each route is considered below.

Delivery to a permitted facility

This route would mean that any waste produced will be recorded at the permitted facility and hence reported through the WDI. Agricultural waste is coded under EWC 01 and EWC codes 02 01. In the WDI 2019 this amounted to c27,000 tonnes from Cumbria.

Applying for a permit

Where agricultural waste is being managed on a farm in sufficient quantities or on an ongoing basis an environmental permit may be required. Where a permit is granted by the Environment Agency the quantities of waste managed through such facilities would be reported through the WDI and hence captured for the purposes of quantifying this waste stream. Incinerators used to burn only animal carcasses or parts of carcasses, must be approved by the farm's local authority. Permitted facilities may also require express planning consent. Of the c27,000 tonnes of agricultural waste from Cumbria, 594 tonnes was managed in Northumberland at a site called Anick Grange Farm Composting Facility.

Registering an exemption

Typical exemptions that farmers apply for include the ability to burn waste in the open (D7), spreading waste to benefit agricultural land (U10) and the use of waste in construction (U1), which covers the use of waste hardcore to maintain farm tracks and roads. However, these exemptions may also be used to cover activities taking place on farmland involving waste from non-agricultural sources. The specific exemptions that relate solely to the management of agricultural waste are as follows:

⁶ DEFRA 2006 Product code PB 11674

⁷ Intensive farming units such as pig or poultry farms are subject to environmental permitting.

- Deposit of agricultural waste consisting of plant tissue under a Plant Health notice.
- Treatment of sheep dip for disposal.
- Treatment of non-hazardous pesticide washings by carbon filtration for disposal.
- Spreading pig and poultry ash mixed with manure on farmland.

3.4 Agricultural Waste managed at Permitted Sites

The previous estimate for agricultural waste not captured in the WDI included in the Joint WNA 2019 for Cumbria has been referred to⁸. This amounted to 3.3Mtonnes (3,393,365) of agricultural waste (natural and non-natural) in 2017. However, it was concluded that only 24,728 tonnes was managed off-site by an assessment of the most likely waste management route for each waste type. Therefore, for the purposes of local planning, c25,000 tonnes of agricultural waste was planned for in the WNA 2019.

Update

Analysis of the WDI 2019 identified c27,000 tonnes of waste from agricultural sources in Cumbria was managed at permitted sites in 2019. This was composed of c5,000 tonnes of non-natural waste and c22,000 tonnes of organic waste. The primary recipients of the waste are displayed in Table 4 below.

Table 4: Permitted Sites Receiving Agricultural Waste from Cumbria

Source: WDI 2019

WPA	Site Name	Anaerobic Digestion	Composting	Non-Haz Waste Transfer / Treatment	Physical Treatment	Grand Total
Cumbria	Ashcroft Recycling Site	0	0	0	2,967	2,967
	Eden Organics Composting Site	0	1,965	0	0	1,965
	Solway Heat And Power Ltd	10,620	0	0	0	10,620
	Stanley Renewable Energy Limited	7,699	0	0	0	7,699
Total Managed in Plan Area		18,319	1,965	1,465	2,967	24,715
Northumberland	Anick Grange Farm Composting Facility	0	594	0	0	594
Redcar and Cleveland	Imperial Park AD Plant	1,435	0	0	0	1,435
Total Managed outside Plan Area		0	594	0	0	2,029
Grand Total		19,753	2,559	1,465	2,967	26,744

Based on the above the total quantity of agricultural waste arising that may require offsite management would be c27,000 tonnes per annum - c5,000 tonnes non-natural plus c22,000 tonnes (organic/natural). This is an increase of 2,000 tonnes per annum on the WNA 2019 estimate.

⁸ An update for 2019 using the Joint WNA 2019 method is not possible due to the DEFRA annual agricultural census data only available in the years that correspond to the EU Farm Structure Survey (up to 2016) and the collection of regional data for 2020 was disrupted due to Covid-19.

3.5 Agricultural Waste Managed via Exempt Activities

Due to the imprecise and non-specific nature of exemptions it is not possible to attribute tonnages managed through these routes. However, it may be reasonable to assume that some of the waste managed in this way eventually ends up at permitted facilities and the tonnages of waste are therefore recorded in the WDI. It may have been mixed with non-agricultural waste at that point and is therefore never declared as coming from agricultural sources. Due to this, no attempt to calculate the total agricultural waste managed at exempt sites has been made.

Conclusion

The estimated agricultural waste arising from Cumbria in 2019 that may require formal management is c27,000 tonnes. This is some c2,000 tonnes greater than the estimate given in the Joint WNA 2019 of c25,000 tonnes. Although the update shows a slight increase in arisings, it would not be justified to plan for additional management capacity. The tonnages managed through exemptions may add to the arisings figure but the quantities are unknown and it is likely that some is reported in the WDI at 'next step' sites.

4. Low Level Radioactive Waste

4.1 Introduction to Radioactive Waste

Solid radioactive waste is divided into three principal categories (and a sub category) according to its radioactivity content and the heat it produces. These categories are:

- **High-level radioactive waste (HLW)** is waste in which can generate significant heat as a result of its radioactivity, and so this factor has to be taken into account in the design of storage or disposal facilities.
- **Intermediate level radioactive waste (ILW)** has lower levels of radioactivity than HLW and does not generate sufficient heat for this to be taken into account in the design of storage or disposal facilities.
- **Low level radioactive waste (LLW)** is radioactive waste having a low radioactive content. LLW makes up more than 90% of the UK's radioactive waste by volume but contains less than 0.1% of the total radioactivity. Within the definition of LLW, there is a sub-classification, known as Very Low Level radioactive waste (VLLW).
 - Very low level waste (VLLW) is defined as either low volume VLLW or high volume VLLW. The principal difference between the two definitions is the need for controls on the total volumes of high volume VLLW being deposited at any one particular landfill or other waste management facilities.

4.2 Context in Cumbria

“Cumbria holds a unique position in the UK in generating and receiving significant quantities of LLW waste from sources in the nuclear, defence and industrial sectors, in addition to the smaller amounts of LLNRW associated with medical and research facilities that all waste planning authorities will deal with.

Sellafield nuclear power station, located in west Cumbria, is the only site in the UK which produces HLW and that is also treated and stored there. It is no longer power generating but processes spent fuel; HLW is the residue created by this process. This site processes around 74% of all the UK's LLW. Cumbria also hosts the Low Level Waste Repository (LLWR), the UK's LLW disposal facility, near to the Sellafield site at Drigg.

Other LLW sites in Cumbria include the three hospitals and BAE Systems Marine Ltd in Barrow.”

– Joint WNA 2019

4.3 Policy Relevant to Cumbria Arisings

The primary national Government policy document relevant to Cumbria due to the presence of nuclear sector facilities is the ‘UK Strategy for the Management of Solid Low Level Waste from the Nuclear Industry’⁹ published in February 2016. The three main strategic themes include:

- the application of the waste hierarchy;
- the best use of existing LLW management assets;

⁹https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/497114/NI_LLW_Strategy_Final.pdf

- the need for new fit-for-purpose waste management routes

Nuleaf's (Nuclear Legacy Advisory Forum) '*Advice on Approaches to Radioactive Waste Management in Local Plans*'¹⁰ published in January 2020 is also relevant for advice on planning policies on lower-level radioactive waste which states:

'Local Plans that include waste policies should state clearly how/where radioactive waste arising within the area will be managed, with appropriate engagement under the Duty to Co-operate.'

National policy also requires that communities take more responsibility for their own wastes. In accordance with this, the following potential options could be considered in drawing up local planning authority policy for radioactive waste disposal:

- *For nuclear industry wastes, the preferred location for LALLW/VLLW disposal may be within the nuclear site where it arises. Alternatively, where there is an aspiration for a particular end state that radioactive waste disposal would conflict with, and de-licensing, the preferred location is likely to be off site.*
- *If those assessments do not identify any practicable solutions then the use of existing or proposed conventional sites within the WPA's area should be considered; or,*
- *If none of those sites has the potential to dispose of those wastes, and the preferred option is for such wastes to go to other areas, the Duty to Cooperate will be relevant and the policy would need to be developed through engagement with the relevant WPA(s).'*

4.4 Low Level Radioactive Waste from Non-Nuclear and Nuclear Sources

Nuclear Sources

The majority of LLW arises from the operation of nuclear power stations, nuclear fuel reprocessing facilities, and also from the decommissioning and clean-up of nuclear sites, all examples of LLW from nuclear sources. As a county Cumbria deals with substantial amounts of LLW from nuclear sources, being the only county with a nuclear power station that produced HLW processed onsite although it has now stopped generating and is going through decommissioning. Cumbria also hosts the national LLWR at Drigg.

Non-Nuclear Sources

Non-nuclear sources of radioactive waste include hospitals, the pharmaceutical sector, and research and education establishments, all of which use radioactive materials which ultimately leads to the generation of radioactive waste. Individually these sources generate relatively small volumes of radioactive waste. Further information regarding these sources is provided below.

- **Hospitals** - Solid low level radioactive wastes arise as a result of traces of radiopharmaceuticals in used syringes, needles, vials from which radiopharmaceuticals have been withdrawn and absorbent or protective materials (e.g. swabs, dressings, sheets and plastic film) which may be contaminated with small amounts of radiopharmaceutical. Traditionally, most hospital waste has been designated as clinical waste, much of which is incinerated. However, hospitals are now segregating wastes at source distinguishing between

¹⁰ <https://www.nuleaf.org.uk/policy-communications/briefing-papers/>

that waste that requires management as clinical and that which can be managed as 'general' waste. This may result in some LLW being managed as general waste.

- **Industry** - The pharmaceutical industry carries out drug and technology development in specific areas of disease research and, in doing so, makes wide use of radiopharmaceuticals. Solid LLW from the pharmaceutical industry comprises general laboratory plastics, vials, sharps (i.e. needles and blades), gloves and any material which may be contaminated. LLW from biotechnology companies includes equipment to count the radioactivity, gloves, protective overalls and vials, and the waste is treated as either clinical or general waste
- **Research** - Radioactive tracers are used in universities, colleges and other research laboratories, to study the incorporation of chemical compounds into cells and organisms and also to study their transfer and metabolism. LLW arising at medical schools and biomedical research laboratories is similar to that from hospital laboratories and the pharmaceutical and biotechnology industries. The waste typically includes disposable plasticware, sample tubes, paper and plastic coverings, paper tissues, and organic liquids that are used to count certain types of radioactivity (called scintillation fluids). Agricultural and animal research will result in rather more bulky wastes (for example plant matter and animal bedding).
- **Contaminated Land** - Whilst waste arisings from the remediation of land contaminated with radioactivity from non-nuclear sources are potentially significant in terms of volumes, their ad hoc nature makes it difficult to undertake any meaningful long term planning for disposal of associated soils. In its strategy, the Government does not therefore expect planning authorities to make specific provision for this within their planning frameworks. However, it does consider it prudent for waste planning authorities to make reference to the possibility that radioactively contaminated soil might arise where historical activities involving radioactive sources have taken place, and that such waste might require disposal to authorised landfills.

4.5 Management of VLLW and LLW

Very Low Level Waste (Exempt Waste)

A site producing or managing less than 50 m³ of VLLW per year is classed as a low volume VLLW source and as such is exempt from reporting quantities of waste produced and managed. VLLW from such sources is not required to be managed separately and so will generally be managed in the same manner as general waste produced on the source site. As a result, any landfill or incinerator in the UK may accept small volumes of VLLW mixed in with the other wastes. On that basis it may be assumed that any waste management facility receiving mixed waste might receive low volumes of VLLW depending on whether source sites fall within their catchment. However, VLLW is rarely (if ever) declared as such in any waste returns submitted so there are no specific records of its management to draw on. The LLW strategy states that Government considers that the present arrangements for low volumes of exempt VLLW are satisfactory and does not expect waste planning authorities to make specific provision for the management of VLLW in their waste plans.

Low Level Waste

When considered on its own, the very small quantity of LLW is insufficient to drive the provision of dedicated management facilities via the market. Therefore, the LLW Strategy concludes that producers of these wastes will nearly always have to rely on waste management networks provided for other larger volume wastes.

Most disposal of LLW requires a permit to be held by both the waste producer and the operator of the waste management facility that receives it. LLW can go either to a landfill as a 'controlled burial', the national Low Level Waste Repository (LLWR) located at Drigg, or may be dealt with by incineration (with or without energy recovery). To extend its life, use of the national LLWR is reserved for particular types of LLW, so LLW disposal usually takes place at specially authorised facilities used for the management of other types of waste. Unlike the network of facilities available to take VLLW there are considerably fewer facilities across the UK that currently take LLW. While operators of appropriate facilities may apply to take LLW at any time, in England there are currently only three landfill sites granted permits to do so. These are shown in Table 5. Given one of these sites is located in Cumbria, it is highly likely that current and future arrangements at this site are of greatest relevance. Planning permission at Lillyhall allows disposal at the site until 2029, with limits to the volume of radioactive waste that can be disposed there of 390,000 cu m in total (approximately 585,000 tonnes) with a maximum annual input of 26,000 cu m.

Table 5: Landfill Sites Permitted to Receive LLW in the UK

Site Name	Operator	Waste Type	Source Specific	Host WPA
East Northants Resource Management Facility	Augean South PLC	LLW	Waste mainly generated from the decommissioning and cleanup of nuclear industry sites ¹¹	Northants
Clifton Marsh	Sita (Lancashire) Ltd	LLW	Small quantities of lower activity low level radioactive wastes ¹² .	Lancashire
Lillyhall Landfill Site	Waste Recycling Group Ltd	High Volume -VLLW	No more than 26,000 m ³ of HV-VLLW per year and if the landfill remains operational until 2031 no more than 582,000 m ³ of HV-VLLW in total. ¹³	Cumbria

4.6 Planning for the Management of LLW

The LLW strategy exhorts producers of LLW to work with planning authorities, to ensure that such wastes may be effectively handled through the preparation of local plans and in determining planning applications. It also suggests that any waste management plans produced by LLW producers should take account of the proximity principle alongside other considerations. It states that:

*“Waste planning authorities should consider how to manage LLW and VLLW arising in their areas as part of the preparation of their local waste plans. They should seek advice from waste producers and the environment agencies to ensure that the waste is being sent to a suitable waste management facility. If necessary and feasible, they should work with other waste planning authorities to share facilities.”*¹⁴

¹¹ <https://www.augeanplc.com/enrmf-planning/>

¹² Sita Ltd 2020 <http://www.sita.co.uk/>

¹³ Environment Agency. 2011. Environmental Permitting (England and Wales) Regulations 2010 Decision Document. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/303034/WRG_Decision_Document.pdf

¹⁴ LLW Strategy key point page 18

4.7 LLW - The Proximity Principle

The LLW strategy recognises that planning, by waste producers, for the disposal of VLLW and LLW involves balancing regulatory and policy requirements with what appropriate disposal routes are actually available. In the case of most low volume VLLW from non-nuclear sources, its management route/fate is purely dependent on that of general waste with which it is mixed at the point of production i.e. waste producers have little influence on choice of destination at which the waste is ultimately disposed unless they segregate it at source.

In the case of deciding on disposal routes for LLW, the LLW strategy states that the Government wishes to see “appropriate and explicit consideration” of the proximity principle. “Appropriate and explicit consideration” means that proximity must be a feature of any options assessment process which supports a proposed waste management plan. “Appropriate” consideration means that the proximity principle will assume a different importance in an options assessment for, say, a site producing large volumes of contaminated steel, for which only a limited number of decontamination facilities are available, compared to a hospital generating low volumes of radioactive waste suitable for (local) incineration or landfill.

4.8 The LLW Strategy also states that

“Communities which benefit from the beneficial uses of radioactive materials (including direct benefit such as the use of radiopharmaceuticals, and indirect benefits such as contributions to a local economy from commercial bodies using radioactive materials) should take a share in the responsibility for managing the radioactive wastes which inevitably arise from their use, where possible”

It does however go on to recognise that “...each and every local authority cannot necessarily be self-sufficient in the matter of waste management.”¹⁵

4.9 Production and Management of LLW in Cumbria

The WNA 2019 did not update LLW arisings for Cumbria.

A review of radioactive source permits records granted by the Environment Agency indicates that there are 8 authorisations held by 7 entities within Cumbria. These permits are issued to establishments which use radioactive substances and it is possible therefore, that as part of their activities, they will generate some LLW or VLLW requiring disposal offsite.

¹⁵ LLW Strategy key point page 17

Table 6: Radioactive Source Authorisations held within Cumbria
Source: Environment Agency Public Register accessed June 2022

Activity	Entity	Data Approved	Location
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste (G)	Energy Coast Laundry Limited	23/10/2018	Joseph Noble Road, Lillyhall Industrial Estate, Workington, CA14 4JX
	Cavendish Nuclear Limited	02/04/2012	Environmental Laboratory, Westlakes Science and Technology Park, Moor Row, Whitehaven, CA24 3HZ
	North Cumbria Integrated Care NHS Foundation Trust	19/12/2010	West Cumberland Hospital, Homewood, Whitehaven, CA28 8JG
		26/02/2020	Cumberland Infirmary, Newtown Road, Carlisle, CA2 7HY
	QinetiQ Limited	07/02/2020	MoD Eskmeals, Millom, LA19 5YR
	Spirit Energy Production UK Limited	15/02/2019	Offshore platforms, CPC1 & Satellites, Morecambe Gas Fields Support Base, Heysham, Offshore
	University Hospitals of Morecambe Bay NHS Foundation Trust	20/04/2012	Furness General Hospital, Nuclear Medicine Department, Dalton Lane, Barrow-in-Furness, LA14 4LF
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste (F)	Kingmoor Park Properties Limited	01/04/2018	Kingmoor Park, Kingstown, Carlisle, CA6 4RP

In addition to the establishments authorised to hold radioactive sources listed in Table 6, there are a number of entities that hold permits for the disposal of radioactive waste within Cumbria. These are referred to as grade H and O permits. These are listed in Table 7. The entities holding these permits are principally radioactive waste management sites.

Table 7: Sites in Cumbria Permitted for Disposal of Radioactive Waste
Source: Environment Agency Public Register accessed June 2022

Activity	Entity	Data Approved	Location
Disposal of Radioactive Waste (N)	FCC Recycling (UK) Limited	15/07/2021	Lillyhall Landfill Site, Workington, CA14 4JH
	Cyclife UK Ltd	02/07/2019	Metal Recycling Facility, 1 Joseph Noble Road, Workington, CA14 4JX
	Sellafield Ltd	02/04/2021	Sellafield and Windscale Sites, Seascale, CA20 1PG
	BAE Systems Marine Limited	18/11/2019	Barrow Shipyards Nuclear Site, Bridge Road, Barrow in Furness, LA14 1AF

Conclusion

This review has found that there are a number of holders of radioactive sources waste and a number of permitted sites managing radioactive waste by disposal in Cumbria. However, in the absence of data on quantities in relation to the authorisations, it is not possible to generate meaningful estimates of future arisings of LLW in Cumbria that may require management via the established waste management system.

5. Conclusion

Review of the above data sources allows the following conclusions to be reached about the need to plan for ‘other wastes’ in the Waste Local Plan:

1. Wastewater and the associated sludge appear to be catered for adequately through arrangements made by United Utilities, the statutory sewerage undertaker. Contact should be pursued with United Utilities to give opportunity to comment on the draft WNA to ensure that the proposed policies are sufficiently flexible to allow consideration of any further development or expansion aspirations they may have.
2. Agricultural waste – Cumbria is not considered to generate sufficient quantities of waste that would warrant specific separate provision assuming the continuation of the existing arrangements including the exemption regime.
3. Radioactive waste - while it has not been possible to estimate quantities of waste likely to be produced, given the current provision of management capacity in Cumbria it is anticipated any needs will be catered for.